

Notes on Habitat and Distribution of Montane Birds in Southern Iran

by

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This study was carried out in May and June 1975 to fill a gap in our knowledge of the breeding birds, their distribution and ecology, in the mountains of southern Iran. In these two months, most species occupy their breeding territories. Records from April or July are not always reliable as an indication of breeding, even if the bird is observed singing. While the avifauna of the northern parts of the country is relatively well-known, that of the southern highlands (above 2,000 meters) is poorly known. Blanford (1876) collected at Rayen (Rayun) 2100 m, and Hanaka, 2400 m, south-east of Kerman, just east of the Kuh-e Hazar, from 30 April to 2 May, and also at Khan-e Sorkh Pass 2550 m, 115 km south-west of Kerman on 23 May. Species collected in these areas by Blanford are: *Columba palumbus*, *Cuculus canorus*, *Melanocorypha bimaculata*, *Motacilla alba*, *Lanius collurio*, *Oenanthe picata*, *Oe. lugens*, *Oe. xanthopyrna*, *Monticola saxatilis*, *Sylvia curruca*, *Serinus pusillus*, *Acanthis cannabina*, *Emberiza buchanani*, and *E. melanocephala*. From data published by Vaurie (1949), it appears that Walter Koelz collected some specimens in the Kerman region, probably on the plateau.

Study area

Our efforts were concentrated on areas situated above 2,000 m including some of the highest mountain ranges south of the Elburz as follows: Kuh-e Jupar 4120 m, 30° 06' N, 57° 09' E, an Eocene volcanic formation ca. 40 km south of Kerman; Kuh-e Hazar 4,465 m, 29° 32' N, 57° 22' E; Kuh-e Shah 4,380 m, 29° 28' N, 56° 49' E, of recent volcanic origin, ca. 120 km south of Kerman; Deh Bakri 2,300–2,500 m, 29° 07' N, 57° E, a valley surrounded by low hills, and Kuh-e Taftan 4,044 m, 28° 37' N, 61° 08' E, a dormant volcano between Zahedan and Khash.

The Kuh-e Hazar as it is known locally and throughout Iran is sometimes indicated on maps made in the west in the unjustified plural form as "Kuh-e Hazaran", "Mountain of the Thousands". Our camp was set at Zahrud-e Bala (Upper Zahrud) 2,700 m. The Kuh-e Shah as it is called in Kerman and on Iranian maps is known to the local people as Shah Kuh "Royal Mountain" and named Kuh-e Lalezar on some western maps; Lalezar is the name of the principal village located in the



Fig. 1. Mountain ranges of southern Iran above 2000 m. Central Range on the left.

valley at the northern base of the mountains. Our camp was set at Zarda 3,000 m. This small settlement is not indicated on 1:50,000 maps but it lies 3 km south of Lalezar. The survey of the Kuh-e Taftan was made from two base camps, one in the foothills of the eastern slopes at ca. 2,100 m, the other at Kusheh 2,250 m on the western slopes. A few birds were observed or collected at lower altitudes between camps, especially near Zahedan 1,350 m. The element "Kuh" in the preceding names, meaning "mountain", will not be repeated hereafter, except in "Shah Kuh". Duration of stays: Jupar 7—13 May, Hazar 14—22 May, Deh Bakri 23—28 May, Taftan east slope 1—5 June, Kusheh 8—15 June, Shah Kuh 19—25 June, 1975. Jupar, Hazar, Deh Bakri and Shah Kuh form parts of the Central Ranges.

Vegetation

We found no description or details on plant associations in the botanical literature for the regions visited. For ornithological purposes, the vegetation cover can be summed up in one word: *Artemisietum* — from the base of the

Fig. 2. Kuh-e Hazar as seen from ca. 3100 m, with rare remnant of willows.



Fig. 3. Typical Pistachio zone at Deh Bakri. Habitat of *Irania gutturalis*, *Oenanthe hispanica*, *Hippolais languida*, *Sitta tephronota*, *Upupa epops*.



Fig. 4. Summit of the Kuh-e Taftan. Almond zone with *Artemisia* in foreground at ca. 2600 m.



Fig. 5. Cultivation at Deh Bakri, 2200 m. Pistachio zone on the slopes.

hills to the highest summits. In the central ranges this association is formed by an uninterrupted cover of *Artemisia herba-alba* clumps averaging about 30 cm in height. Smaller associations are encountered very locally, such as those formed by the thorny cushions of *Astragalus*, or by a foulsmelling Umbelliferae sp. No grassy area exists except for a small patch near the top of the Taftan east slope, and some moist turf along the main stream of the Shah Kuh flowing north towards Lalezar; the latter formation seems to have contributed to the lowering of the altitudinal breeding zone of *Oenanthe oenanthe* in this region. A few scattered almond shrubs or rarely a juniper are met with here and there on the Jupar, Hazar and Taftan, hardly enough to warrant a further zonal division, at least for ornithological purposes. The Shah Kuh region is entirely devoid of shrubs. Along the Zahrud, the main stream of the Hazar north slope, a few willow trees are still in existence up to ca. 3,300 m, all pollarded to provide extra fodder for grazing animals. No young willows occurred in this valley because of heavy grazing. Along the main valley of the Shah Kuh, we came across a couple of old willow stumps, but all living trees had been cut down. At the headwaters of the main stream, fields of thistles locally replace *Artemisia*. Small patches of irrigated cultivation with poplars and fruit orchards are found at lower elevations in each of the localities visited. In the surroundings of Deh Bakri, between ca. 2,200 and 2,400 m lies an extensive Pistachio-Almond zone. In no area, however, does the scrub ever form a continuous cover as bushes and trees are scattered on the stony ground. A belt of Pistachio-Almond is also found on the Taftan at elevations varying from ca. 2,200 m on the eastern slope to 2,600 m on the western slope; here the Pistachio trees are much more scattered than in the Deh Bakri region. The Artemisietum of the Taftan is composed of different, taller species, sometimes reaching a meter in height and affording a suitable habitat for *Prunella fulvescens* as well as the regular *Artemisia*-inhabiting species.

As a result of the uniformity of vegetation, the breeding birds distribution appears to be determined by other factors such as the terrain, angle of slopes and presence or absence of rocks or water. Altitude itself may have a bearing on distribution although it is not clear how birds may be affected. Perhaps the composition of the insect fauna changes at altitudes characterized by cold temperature, thus limiting the altitudinal range of certain bird species. *Oenanthe lugens*, for example, occurs only in a narrow zone in the foothills although its apparently suitable biotope seems more extensive.

The occurrence of tree inhabiting birds in a desert country is naturally very sporadic; cultivation, with its poplars, orchards and wheat fields, affords a habitat suitable to some species and it has presumably occasioned

some range extensions of such species as the Quail, Nightingale, Black-headed Bunting, Syrian Woodpeckers, and others that are restricted to cultivated areas.

Systematic list

The results of our observations are presented in two parts. The first part comprises the more characteristic montane species that are well represented in the foothills above ca. 2,000 m. The second part is a list of species occurring mostly on the plateau (average altitude 1,500 m), but sometimes reaching the foothills in small numbers. A sharp division between the two groups is evidently not possible.

First part.

Long-legged Buzzard *Buteo rufinus*

Seen on the Taftan east slope on 5 June, on the west slope 2,600–3,100 m from 10 to 14 June, and on the Shah Kuh 3,100–3,200 m, 20 to 24 June. A bird of the foothills. Local name *shāhīn* (Baluchi: Kusheh), all hawks.

Golden Eagle *Aquila chrysaetos*

An adult seen on the Hazar 4,300 m on 20 May. On 24 June we observed an immature bird on the Shah Kuh 3,300 m catching a large *Agama* lizard.

Rock Partridge *Alectoris graeca*

Met with on the Jupar above 2,500 m, Hazar 2,700–3,100 m, Deh Bakri above 2,300 m; extremely abundant on the Taftan between 2,300 and 3,100 m, but inexplicably, we did not find it in the Shah Kuh region. Local name *kōg* (Baluchi: Kusheh), also *chakūr*, *kabk* (Farsi: Deh Bakri).

The voice of these birds appeared to us identical to that of the central European birds with which we are very familiar. This is in contradiction to Watson (1962) citing Aristoteles, and prompts us to dispute the appropriateness of Watson's quotation which we give here: "The voice ... of other animals differs, even within the same genus, according to locality; for instance, in some regions, the partridge cackle, in others they whistle". While some authors translate Aristoteles' *trizousein* by "whistle", others have rendered more accurately the semantic value or the verb by "utter shrill calls". We cannot but agree with D'Arcy W. Thompson stating in his version (Oxford, 1910, 536 b, footnote) that "the difference is specific between *P.[erdix] graeca* and *P. cinerea*". The term "genus" in the above translation (gr. *genos*) should not be taken in its ornithological restricted meaning, but as "sort" or "kind" as translated by some authors. All populations of *graeca* and "*kleini*" (= *cypristes*) in Thrace appear to be geographically separated, thus explaining the fact that, according to Watson, there are no intermediates or signs of introgression of characters. Adds Watson (p. 360): "So far,

however, no distributional overlap based on specimens collected and preserved has been shown". In view of the frequent interspecific and intergeneric hybridization within the Galliformes, we are also tempted to view with skepticism any purported sympatry between such closely related taxa as the *Alectoris* partridges, particularly within the *graeca-chukar-magna* formenkreis.

Seesee Partridge *Ammoperdix griseogularis*

This species prefers less steep slopes at lower altitude than *Alectoris graeca*. At Kusheh, however, we found both species at the same spot at 2,300 m where the two meet in this locality. Weight, 1 ♂ 177 g. Local name *sūsū* (Baluchi: Kusheh) also *sūsk*.

Rock Dove *Columbia livia*

Seen in all areas from the foothills, 2,000 m to ca. 3,000 m. Local name *kaftar*, *kaḅūt* (Baluchi: Kusheh), *kaḅutar* (Farsi: Deh Bakri), *kaḅutar-e jangali* (Zahedan).

Turtle-Dove *Streptopelia turtur arenicola*

Seen near orchards at Zahrud 2,700 m, Deh Bakri 2,200 m, Kusheh 2,300 m and in the Pistachio zone above Kusheh at 2,500—2,600 m. Weight, 1 ♀ 115 g. Local name *shātū* (Baluchi: Kusheh); *qumri* (Zahedan).

Laughing Dove *Streptopelia senegalensis cambayensis*

Seen only at Deh Bakri and in the Kusheh cultivations at 2,200—2,300 m in the same biotope as *S. turtur*. We have not noticed any preference in habitat although *senegalensis* appeared to venture a little farther into tree-less cultivation. Weight, 1 ♂ 68 g.

Cuckoo *Cuculus canorus*

Common in the foothills up to ca. 3,300 m, especially in the vicinity of orchards where they feed on the caterpillar-infested fruit trees. Local name *kokkū* (Baluchi: Kusheh); *kuku* (Farsi: Deh Bakri).

Nightjar *Caprimulgus europaeus unwini*

An individual flushed at ca. 3,800 m near the top of the Taftan on 22 June; song heard at 2,500 m above Kusheh, at 2,500 m on a steep rockly slope, and in the Shah Kuh foothills, 20—24 June. Weight, 1 ♂ 51 g.

Swift *Apus apus*

Seen on the Hazar from 2,800 m to the summit, nesting in cliffs at 2,800 m, and on the Taftan from 2,200 to 3,900 m, colony at 2,800 m. Very numerous in the Deh Bakri region. Local name *chalgat* (Baluchi: Kusheh); also *gandum pazak*.

Alpine Swift *Apus melba*

About 15 individuals seen on the Taftan east slope at 2,700 m on 5 June, some entering a crevice.

Hoopoe *Upupa epops*

Seen in cultivation at Zahedan 1,350 m, Zahrud 2,700 and Shah Kuh 3,000 m. Very common in the Pistachio zone of Deh Bakri where a nest was found. On the east slope of the Taftan we found it in the Pistachio zone and also in scrubless rock and *Artemisia* at 3,200 m where it probably breeds. Local name *shahaneh-sar* (Farsi: Deh Bakri); *hudhud* (Zahedan).

Syrian Woodpecker *Picoides syriacus*

Observed in cultivation at Kasimabad (Jupar) 2,200 m, Zahrud 2,700 m, several nest cavities found, and Deh Bakri 2,200 m. Weight, 1 ♂ 60 g; 2 ♀ 55, 63 g. Local name *kurusak* (Farsi: Deh Bakri); *chug-navard* (Zahedan).

Crag Martin *Hirundo rupestris*

Jupar 2,500 m, nest with eggs on 9 May; Hazar 2,600 to 4,200 m, nest at 2,900 m, colony at 3,500 m; Taftan 2,300—3,000 m, feeding young at 2,600 m; Shah Kuh 3,300 m to the highest summits.

House Martin *Delichon urbica*

Jupar, colony at 2,800 m, Hazar 2,600—3,600 m; Taftan east slope 2,700—3,900 m, colony of 26 nests at 3,500 m; Kusheh 2,200 m; Shah Kuh 4,100 m. Recorded by Blanford near Kerman at 2,100 m on 7 May.

Short-toed Lark *Calandrella cinerea artemisiana*

Zahedan 1,350 m; Shah Kuh up to 2,900 m in alluvial formation, not on slopes. Fledglings fed by parents at 2,900 m. Weight, 3 ♂ 21, 22, 23 g.

Bimaculated Lark *Melanocorypha bimaculata*

Only observed once, an adult and an immature in the Shah Kuh main valley bottom at 3,600 m, in very stony country. Weight, 1 ♂ juv. 32 g. Stomach contained seeds and grit. Previously recorded by Blanford at Khan-e Sorkh Pass 2,550 m on 23 May, and by Koelz near Kerman in December (Vaurie, 1951).

Horned Lark *Eremophila alpestris albigula*

Jupar 2,600—3,200 m; Hazar 2,600—4,200 m; Deh Bakri 3,000 m; Shah Kuh 2,800—3,800 m; numerous fledglings seen in the latter area. Weight, 3 ♂ 38, 39, 40 g.

Crested Lark *Alauda cristata magna*

The most abundant bird on the Iranian plateau, occurring also on gently sloping alluvial formations but not entering the hills. Maximum altitudes: Jupar 2,400 m, Taftan 2,500 m, Deh Bakri 2,200 m, Shah Kuh 3,100 m. In Zahedan it frequents flat semi-desert and fallow land, not entering cultivation where *Alauda gulgula* is found. Weight, 1 ♂ 39 g, 1 ♂ juv. 38 g. For use of generic name, see Harrison (1966). Local name *khudikulā* (Farsi: Deh Bakri); *kikkeh*, *chaquk* (Baluchi: Kusheh).

Red-backed Shrike *Lanius collurio phoenicuroides*

Deh Bakri 2,200—2,400 m in Almond-Pistachio zone; Taftan east slope 2,200—2,700 m, nest in a pistachio at 3,5 m above the ground on 3 June. Taftan west slope in broom-like almond bushes at 2,500 m. One pair at Zahrud on 14 May in bushes near cultivation, but not seen in subsequent days. Weight, 1 ♂ 26 g. Col-

lected by Blanford at Khan-e Sorkh 2,550 m on 22 May. Local *pokhtu* (Farsi: Deh Bakri); *pokheh* (Zahedan).

Bay-backed Shrike *Lanius vittatus nargianus*

Seen only at the base of the Taftan, in almond scrub on the east side 2,300 m, on 5 June, and two or three families in orchards near Kusheh 2,200 m—2,300 m. Weight, 1 ♂ 22 g. Local name *lahlek* (Baluchi: Kusheh).

Great Grey Shrike *Lanius excubitor aucheri*

Taftan 2,300 m, pair with young out of nest on 5 June, in very low almond scrub. Shah Kuh, immature at 3,000 m (foothills) on 24 June. Stomach: small lizard, insects.

Long-billed Pipit *Anthus similis decaptus*

A bird of the foothills frequenting *Artemisia* slopes with scattered bushes. Jupar 2,600 m, Taftan 2,100—3,000 m, feeding young. Its song, delivered in flight, is an unimpressive, slow repetition of two notes *tsiup...chee* or sometimes a variant *chirp...shewee* with a sparrow-like quality. Weight, 1 ♀ 29 g. Local name *chiliguk* (Baluchi: Kusheh).

Grey Wagtail *Motacilla cinerea cinerea*

Frequents permanent rocky streams in gorges and valleys immediately above M. *alba*. Jupar 2,600 m; Hazar 2,700—3,700 m; Taftan east slope 2,700—3,700 m (the only permanent stream), Kusheh 2,200—2,800 m, several family parties, Shah Kuh above 3,000 m, nest with 4 eggs at 3,300 m on 21 June. Weight, 2 ♂ 15, 18 g. Local name *morghābi* (Baluchi: Kusheh).

White Wagtail *Motacilla alba*

Frequents irrigation streams in the gently sloping foothills, being replaced by M. *cinerea* at the entrances of valleys. Jupar up to 2,500 m; Zahrud to 2,700 m; Shah Kuh to 3,000 m. Young birds were observed in the Kerman gardens on 25 June. Recorded by Blanford at Hanaka 2,400 m on 3 May. Local name *khar cheran* (Baluchi: Kusheh); *seidū* (Farsi: Deh Bakri), *dum-jumbanak* (Zahedan).

Maggie *Pica pica*

Only in the neighborhood of cultivation: Jupar 2,200—2,500 m, Zahrud 2,300—2,700 m, Deh Bakri 2,200 m.

Red-billed Chough *Pyrrhocorax pyrrhocorax*

Seen on the Jupar from 2,200 m up, on the Hazar from 2,800 to 3,500 m nesting at 2,800 m, at Deh Bakri 2,500 m, on the Shah Kuh from 3,200 to 4,000 m at Kusheh 2,250 m and near the top of the Taftan, 3,950—4,000 m. Local name *zaq* (Baluchi: Kusheh).

Alpine Chough *Pyrrhocorax graculus*

Seen on the Jupar between 2,500 and 3,500 m and Hazar between 3,500 and 4,000 m. Keeps to higher elevations than the Red-billed Chough; its call is quite different from that of the population of the Alps, shorter and less whistled.

Hooded Crow *Corvus corone sharpii*

Seen at Zahrud, 2,700 m, Deh Bakri 2,200 m young birds in the nest, and Shah Kuh up to 3,000 m (foothills). Local name *kalāq* (Farsi: Deh Bakri).

Raven *Corvus corax*

A pair seen at Deh Bakri 3,000 m on 27 May.

Radde's Accentor *Prunella fulvescens ocularis*

Common on the Taftan from ca. 2,800 to 3,950 m. Local on the Shah Kuh where family parties were seen on 21 June at 3,900 m. Not found on the Hazar, where it presumably lacks the required vegetation. Frequents stony slopes usually with fairly high (ca. 1 m) *Artemisia* clumps, thistles or other relatively lush vegetation of weeds or scrubs, sometimes on stony slopes with low vegetation. Its range appears to be continuous from the Zagros through the mountain ranges of southern Iran and northern Baluchistan to Chaman, in Pakistan (Ticehurst, 1926). A nest found on the Taftan east slope on 4 June was placed in a large *Artemisia* clump, ca. 50 cm above the ground; it was made of plants stems and lined with fine fibers and *Alectoris* feathers, and contained 3 fledged young. Seen in loose parties after breeding. The song of this accentor has more the quality of *P. modularis* than of *P. collaris*. Like the former, it has a horizontal flick of the tail. Weight, 1 ♂ 20 g,

Alpine Accentor *Prunella collaris* (probably *montana*)

Restricted to high altitudes on the Hazar 3,400—4,200 m, and Shah Kuh, 4,100 m. Not previously recorded as a breeder south of the Elburz. Weight, 1 ♂ juv. 33 g.

Cetti's Warbler *Cettia cetti albiventris*

Bushes in cultivation on the Hazar 2,700 m and in high mint near a stream on the Taftan 2,400 m. A specimen collected here is a much paler rufous brown above than a bird collected near Tehran three weeks earlier (ssp. *orientalis*).

Upcher's Warbler *Hippolais languida*

Deh Bakri, 2,300 m in pistachio trees on 26 April. Recognizable by the upward flicking of its dark tail.

Booted Warbler *Hippolais caligata rama*

Zahedan 1,350 m, in tamarisks along a stream. Birds nesting in the gardens of Kerman were tentatively identified as this species; their song was a sequence of rather short phrases with characteristic interrogative inflections. Weight, 2 ♂ 9, 9 g, 1 ♀ 9 g. Not a montane species.

Orphean Warbler *Sylvia hortensis balchanica*

Fairly common at Deh Bakri 2,200—2,400 m and Taftan east slope 2,200—2,700 m, always in the Pistachio-Almond zone; pair feeding young on 3 June at 2,700 m. Weight, 1 (sex?) 24 g.

Whitethroat *Sylvia communis icterops*

Very scarce: Jupar 2,200 m, 12 May; Taftan 2,650 m, 4 June, ovary well developed. In isolated bushes. Weight, 2 ♀ 18, 20 g.

Lesser Whitethroat *Sylvia curruca althaea*

Rather widespread but only where at least a few shrubs occur: Deh Bakri 2,200 m; Zahrud 2,700 m (laying); Taftan 2,400—2,700 m; Jupar 2,400 m; Shah Kuh 3,000 m (in cultivation). Collected by Blanford at Khan-e Sorkh, 2,550 m on 22 May. Weight,

1 juv. 13 g, 1 ♀ 13 g. All specimens breeding in the area investigated are *althaea*. The apparent sympatry of the forms *curruca*, *minula* and *althaea* as discussed by Vaurie (1954: 9—10) appears to be based on a misinterpretation of passage migrant and breeding data. Ali and Ripley (1973, vol. 8: 129 and map p. 127) consider the forms as conspecific. Our own experience with both *althaea* and *curruca* confirms the latter authors' view. The two subspecies have identical call-notes. The variations in their song are those one must allow within such a wide-ranging species. The differences in habitat described by Vaurie are geographical in nature since an even greater eclectism may be shown by one form within a few kilometers.

Plain Leaf-Warbler *Phylloscopus neglectus*

Fairly common from the base of the hills upward: Jupar 2,700—3,300 m; Deh Bakri above 2,400 m, Hazar 2,700—3,400 m; Taftan, both slopes 2,400—3,200 m; Shah Kuh 3,300 m. Weight, 3 ♂ 5.5, 6.6 g. Usually feeds on clumps of *Artemisia* or on the ground, freely exploring trees where present. Song short and rapid *tsiv-tsuvi-tsuvi* with some variants but always easily recognizable. Call-note, a sparrow-like *tslip*. Local name *cherreh* (Baluchi: Kusheh).

Scrub Warbler *Scotocerca inquieta striata*

Fairly common except in the Shah Kuh region where scarce, in scrubs, scrubs among rocks, and pure *Artemisietum* where it feeds among clumps or on the ground. Jupar 2,500—3,300 m; Hazar 2,700—3,000 m; Deh Bakri above 2,400 m (not in the Pistachio zone); Taftan 2,100—3,900 m; Shah Kuh 3,300—3,300 m. Song rendered as *tsidzi-tzidzi-tsrrrrri*; alarm-note *seeeeu*; also a mewing call from a family party. Local name *chortek* (Baluchi: Kusheh).

Spotted Flycatcher *Muscicapa striata sarudnyi*

Seen on the Jupar 2,100—2,700 m; Hazar 2,700—3,200 m; Taftan east slope 2,000—2,700 m and Kusheh 2,250 m. Almost always in gorges where a few bushes occur, not far from water. Two nests found. Weight, 3 ♂ 15, 15, 16 g, 2 ♀ 15, 15 g.

Stonechat *Saxicola torquata armenica*

A single male seen on the Shah Kuh, 3,300 m on 20 June, in cultivation and humid ground. Weight, 13 g.

Wheatear *Oenanthe oenanthe*

Seen on the Taftan from 3,400 m to the summit and commonly in the Shah Kuh region from 2,700 to 4,100 m. We believe the moist turf along the streams of this area to be the factor allowing this species to descend and breed at such low levels in the Lalezar valley. At the headwaters of the Shah Kuh main stream it was observed in stony thistle fields along with the Horned Lark. On the Taftan it was found among rocks and *Artemisia*. It seems plausible that the Wheatear must suffer from competition with the more common Red-tailed Chat which frequents the same habitat. Weight, 2 ♂ 25, 25 g., 1 ♀ juv. 19 g.

Black-eared Wheatear *Oenanthe hispanica melanoleuca*

Found only in the Pistachio-Almond zone around Deh Bakri 2,200—2,300 m where a pair was feeding the young on 28 June. Both the white-throated and the black-throated forms were seen within 200 meters. Weight, 1 ♂ 16 g.

Eastern Pied Wheatear *Oenanthe picata*

Very common in the Taftan foothills between 2,100 and 2,400 m, occasionally 2,700 m. All belonged to the phase *picata*; two of the males collected had buff under tail-coverts, thus rendering this character unreliable in the identification of *Oe. lugens*. Not seen on the Hazar and Jupar where apparently replaced by *lugens*. One male of the phase *capistrata* was collected in Shah Kuh foothills where *lugens* was common. Blanford collected the species at Sarjan 2,000 m, southwest of Kerman on 23 May. *Oe. picata* appears to hunt from lower perches than *Oe. lugens*, often where scrub is present. Weight, 2 ♂ 21, 22 g, 1 ♂ juv. 20 g, 2 ♀ 18, 20 g. Local name *siāh polek* (Baluchi: Kusheh).

Mourning Wheatear *Oenanthe lugens persica*

Fairly common but usually seen only at the base of the hills: Jupar 2,200–2,500 m; Hazar 2,600–2,700 m; Shah Kuh 3,000–3,200 m. Collected on the Hazar 2,700 m. by Blanford on 2 May. Not seen in the Taftan foothills where it appears to be replaced by *Oe. picata*; one possible sight record on the Taftan east slope at 3,500 m. Frequents Artemisietum with large boulders. Appears to hunt from higher perches (larger rocks) than *Oe. picata*. Buff color on under tail-coverts often not visible, the coverts appearing white even a short distance. Weight, 1 ♂ 23 g.

Desert Wheatear *Oenanthe deserti atrogularis*

Seen only on alluvial ground above the village of Lalezar at 2,950 m. Pair feeding fledglings just out of nest on 24 June. Weight, 1 ♂ 18 g, 1 ♂ juv. 19 g.

Red-tailed Chat *Oenanthe xanthopyrmyna chrysopygia*

Common in Artemisietum slopes with rocky outcrops or a fair amount of large boulders, larger than those required by *Oe. lugens*; also found at the base of cliffs and in narrow valley bottoms. Jupar 2,200–3,300 m; Hazar 2,700–3,700 m; (collected by Blanford near Rayen 2,700 m. on 1 May). Deh Bakri above the Pistachio zone; Taftan 2,300–4,000 m (summit); Shah Kuh 3,000–4,100 m (foothills to the summits). A nest placed in a rock-cleft was a rough cup made of *Artemisia* stems. All birds seen were without black on the throat. Weight, 1 ♂ juv. 21 g, 1 ♀ 22 g.

Hume's Wheatear *Oenanthe alboniger*

Rare. Seen only on the Taftan west slope, near Kusheh 2,300 m, in a biotope similar to that of *Oe. lugens*: stony Artemisietum with rocky outcrops. Colors of bare parts, juv.: Iris and bill black, legs and feet blackish. Weight, 1 ♂ 26 g, 1 ♀ juv. 26 g.

Rock Thrush *Monticola saxatilis*

Common in all regions visited from the foothills up, ca. 2,400–3,900 m. Many young birds and families were seen. Weight, 1 ♀ juv. 41 g. Local name *gang-kuchek* (Baluchi: Kusheh), also *būr-dornuk*.

Blue Rock-Thrush *Monticola solitarius*

Common, especially on the Taftan, usually in cliffs or gorges near water but after the breeding season we found them in the same habitat and at the same spots as the *M. saxatilis*. Seen on the Jupar, Deh Bakri, Hazar and Taftan between 2,200 and 3,100 m.

Black Redstart *Phoenicurus ochruros phoenicuroides*

Restricted to high altitudes on the Hazar 3,900—4,200 m, Taftan 2,700—4,000 m, and Shah Kuh 3,250 m — to the summits. Pairs with fledglings observed. The species was not known to breed south of the Elburz. Weight, 2 ♂ 13, 16 g. Local name *barfichek* (Baluchi: Kusheh).

Nightingale *Erithacus* ¹⁾ *megarhynchos hafizi*

A silent bird at Zahrud 2,700 m, in bushes in cultivation, probably a migrant. Weight, 26 g, fat. Song heard in orchards at Kusheh 2,200 m on 12 and 14 June. The description of the song of the Iranian nightingale by Erard and Etchécopar agrees well with our own impression.

White-throated Robin *Irania gutturalis*

Several pairs in the Pistachio-Almond zone of Deh Bakri at 2,300—2,400 m. Frequents stunted, isolated almond scrub on stony slopes. Only one family seen in the Shah Kuh region 3,400 m, a female with young, on valley slope with *Artemisia* and *Euphorbia*, and the only two small rose bushes in the whole region. A nest found at Deh Bakri with three young ready to leave, was quite exposed, about 60 cm high in an almond scrub. It was made of vegetable fibers and stems, lined with feathers. The female's alarm call is a thin *eet ... eet* or *zut ... zut* with an occasional Nightingale-like *trrr*. The birds usually perched on scrub. Weight, 1 ♀ 23 g.

Blackbird *Turdus merula*

Seen only in the few willows left in the main valley of the Hazar from 2,800 to 3,100 m, and in the Pistachio zone of Deh Bakri 2,300—2,400 m, never far from streams.

Sombre Tit *Parus lugubris dubius*

Seen only near Deh Bakri 2,200 m, in cultivation in company with *P. major*; also in the Pistachio zone. Weight, 2 ♂ 17, 19 g.

Great Tit *Parus major blanfordi*

Observed in the same orchard as *P. lugubris* near Deh Bakri, 2,200 m; does not enter the nearby Pistachio zone. Weight, 1 ♂ juv. 18 g.

Rock Nuthatch *Sitta tephronota obscura*

Extremely abundant around Deh Bakri in the Pistachio zone 2,200—2,500 m, and on the Taftan 2,200—2,500 m. Common on the Hazar 2,700—2,800 m, occasionally up to 3,000 m. Inexplicably absent from the Jupar and from the Shah Kuh region where such a noisy species could not have escaped attention if present. It is to be noted that, in our experience, this species seldom frequents cliffs but rather affects stony ground, large boulders and rocky outcrops. In the Deh Bakri region, the species inhabits the Pistachio zone on stony ground where rocky habitat is not available. Here the birds feed on the ground, climb trees and nest in holes in trees. One nest was situated at a height of 170 cm in a pistachio trunk. About 3/4 of the entrance hole was plastered with a "collar" of earth and pistachio resin,

¹⁾ = *Luscinia*. W.

about 5 cm wide by 3 cm thick. We believe that this species originally was a forest-inhabiting bird that is now driven to a rocky habitat by the dessication of its range and elimination of forest. Weight, 2 ♂ 37 g, 44 g, 1 ♀ 41 g, 3 (o) 40, 40, 43 g. Local name *gwankatek* (Baluchi: Kusheh).

House Sparrow *Passer domesticus persicus*

Jupar 2,000—2,300 m, Hazar 2,600—2,800 m, Deh Bakri 2,100—2,300 m, Taftan 2,300—3,000 m, Shah Kuh, 3,000 m. Found wherever there is cultivation, especially cereals, as at Kusheh. It is interesting to note that it is absent in the towns of Zahedan and Mirjaveh where it is replaced by *P. montanus*. However we found it in cultivation outside the town of Zahedan, nesting in a sand-bank or building its untidy globular nest in the crowns of trees. Little can be found in the literature concerning the breeding of the House Sparrow "in the wild", i.e. away from any human influence. This condition apparently occurs only in the Middle-Eastern countries, while elsewhere, even in Europe, the species seems closely linked to agriculture. In the Hazar main valley, we found the species nesting in a cliff in a gorge, an hour's walk from the nearest habitation. On the Taftan east slope, where there are no permanent settlements or cultivation for many miles around, we observed the species nesting in loose colonies in conglomerate cliffs. This supports the hypothesis that *Passer domesticus* was originally an inhabitant of semi-desert and has spread from the Middle-East with the advent of agriculture. Weight, 2 ♂ 23, 24 g. Local name *gunjeshk* (Baluchi: Kusheh).

Rock Sparrow *Petronia petronia intermedia*

Jupar up to 3,400 m; Deh Bakri 2,400 m, common in the Pistachio-Almond zone; Hazar 2,850—3,000 m, Shah Kuh 3,100—3,500 m; not seen on the Taftan. On the Hazar, an individual was seen entering the mud-nest of *Sitta tephronota* at 2,900 m, possibly breeding there. Weight, 1 ♂ 33 g.

Snowfinch *Montifringilla nivalis alpicola*

Hazar 3,700—4,000 m, one individual building a nest on 20 May. Shah Kuh from the lowest névés (3,500 m on 22 June) up to 4,000 m. This species is closely associated with névés and should be expected to occur on other peaks where remnants of snow last through summer. Weight, 1 ♀ 31 g. Local name *chirik* (Shah Kuh).

Red-fronted Serin *Serinus pusillus*

Common. Jupar 2,500—3,200 m; Hazar 2,700—3,200 m; Deh Bakri 2,300—2,800 m; Taftan east slope 2,700—3,500 m; Deh Bakri 2,300—2,800 m; Taftan east slope 2,700—3,500 m; Kusheh 2,500—3,100 m; Shah Kuh 3,000 m. Recorded by Blanford at Hanaka, 2,400 m on 2 May. The Red-fronted Serin is decidedly a rock-foraging bird when occurring in scrubless country; it does however frequent scrubs wherever they occur; on several occasions we also observed them feeding and singing in tall willows in small flocks in the manner of siskins. On 17 May a nest was being built in a juniper scrub on rocks at 3,000 m. Weight, 3 ♂ 11, 12, 12 g, 1 ♀ 12g. Local name *surkh-sar* (Baluchi: Kusheh).

Goldfinch *Carduelis carduelis parapanisi*

Hazar 2,600—3,200 m, in tree-less and bush-less country; Deh Bakri 2,300 m, in the Pistachio-Almond zone; Shah Kuh 3,300 m in cultivation and up to 3,700 m on stony ground with *Artemisia* and thistles (still not in bloom at the end of

June). In the absence of trees, the birds nest in low vegetation; on the Hazar a nest was placed near the thick stem of an Umbelliferae sp., 160 cm from the ground. Where trees are available they are readily adopted: in the same area another nest was built near the top of a willow, 10 m above the ground. Weight, 1 ♂ 20 g. This confirms that *paropanisi* is the subspecies breeding in the Kerman mountains (cf. Erard and Etchécopar, 1970, p. 119). The birds were just beginning to breed in the middle of May.

Linnet *Acanthis cannabina bella*

Uncommon: Hazar 2,700—2,800 m; Deh Bakri 2,200—2,500 m, Shah Kuh 3,500 m. Stony slopes in the foothills. Recorded by Blanford at Hanaka, 2,400 m on 2 May. Weight, 1 ♂ 18 g, 1 ♀ 17 g.

Crimson-winged Rosefinch *Callacanthis sanguinea*

For use of this name, and affinities, see Desfayes (1969). Small flocks feeding on the ground in Artemisietum on the Jupar 2,200—2,500 m, 10—12 May. Some birds were singing but no territorial activities were noted. A pair on 22 May below Zahrud at 2,500 m. The birds appeared to be on passage and were not seen later at higher elevations.

Trumpeter Finch *Carpodacus githagineus crassirostris*

Observed only near Kusheh, 2,200—2,300 m where fairly common on stony slopes. Weight, 3 ♂ 20, 21, 21 g, 1 juv. 18 g. Colors of bare parts: Male, iris dark brown; bill orange; legs and feet pinkish flesh; female: iris dark brown; upper mandible brown, lower orange-yellow; legs and feet brownish flesh. We see no reason to separate this species from *Carpodacus*. While its bill is more rounded than most other members of *Carpodacus* it should be noted that *Carpodacus synoicus beicki* has a bill similar in shape to *C. githagineus*, whereas the nominate subspecies *synoicus* has a pointed bill. In habits it does not differ appreciably from other rock-inhabiting species of the genus; see also Desfayes (1971). Local name *surkh-kalampok* (Baluchi: Kusheh).

Corn Bunting *Emberiza calandra*

Deh Bakri 2,200 m, in cereal cultivation; Shah Kuh 3,300 m, in an abandoned field with a few bushes. Weight, 1 ♂ 49 g.

Rock Bunting *Emberiza cia*

Uncommon. Several pairs in the Hazar main valley between 2,800 and 3,300 m, always near willows. Also noted at Deh Bakri 3,300 m and Shah Kuh 3,100 m.

Grey-necked Bunting *Emberiza buchanani buchanani*

Common: Jupar 2,500—3,000 m; Hazar 2,600—3,200 m; Deh Bakri above 2,400 m; Taftan east slope 2,600—3,800 m; Kusheh 2,200—2,800 m; Shah Kuh 3,000—3,900 m. Weight, 3 ♂ 19, 21, 22 g. 1 ♂ juv. 16 g. Blanford found it breeding at Khan-e Sorkh and Hanaka 2,400 m. A very widespread species and characteristic inhabitant of Artemisietum slopes. Its song is comparable to that of the Ortolan Bunting as described by some authors, but not identical to it. Any observer familiar with the Ortolan's song, as we have been since our childhood, would find the Buchanan Bunting's song quite unmistakable. It usually consists of a five-note strophe beginning with three notes on the same tone, followed by two lower notes, and could be transcribed thus *dzil-dzil-dzil djueh-djueh*. The Ortolan's song may be

transcribed as a soft *dee-dee-dee-dee-du*, four notes on the same tone, only the last being lower. We heard the above described song in the Jupar and Taftan regions, while all individuals in the Hazar region had a different dialect whereby the two final notes had a much more grating quality. The alarm note is similar to that of the Ortolan's but lacks the lower of the two alternated notes so characteristic of the latter in the breeding season.

Black-headed Bunting *Emberiza melanocephala*

Hazar 2,700 m; Deh Bakri 2,200 m; Kusheh 2,250—2,500 m; Shah Kuh 3,000 m. Blanford found it at Hanaka in May. Occurs in cultivation only, usually in orchards, less frequently in cultivation without trees. Weight, 2 ♂ 25, 29 g, 2 ♀ 23, 28 g. Local name *zard gunjeshk* (Baluchi: Kusheh).

Second part

Species recorded in small numbers in the foothills above ca. 2000 m. This list also contains a few species collected or observed between camps at lower elevations on the plateau.

Little Bittern *Ixobrychus minutus*

A pair caught near Zahedan 1,350 m on 7 June.

Black Kite *Milvus migrans*

A straggler seen several times in the Shah Kuh foothills 3,000 m, 20—24 June. Not seen anywhere else on the Iranian plateau.

Booted Eagle *Hieraetus pennatus*

One observation at Kusheh 2,300 m on 12 June.

Bonelli's Eagle *Hieraetus fasciatus*

An adult and an immature bird seen on the Shah Kuh 3,300 m, swooping at a Golden Eagle.

Egyptian Vulture *Neophron percnopterus*

Seen only at Mirjaveh ca. 1,300 m near the Pakistani border.

Barbary Falcon *Falco pelegrinoides*

A bird in the Jupar foothills ca. 2,600 m at the entrance of gorges on 11 May; one near Zahedan 1,350 m on 6 June.

Kestrel *Falco tinnunculus*

Widespread but not common. Seen in the Jupar foothills 2,500 m, Deh Bakri 2,400 m, Zahedan 1,350 m, Shah Kuh foothills 3,000 m; a nest at ca. 2,500 m on the Taftan east slope. Local name *bāsheh* (Baluchi: Kusheh), all small hawks.

Quail *Coturnix coturnix*

Heard at Deh Bakri 2,200 m and Kusheh 2,250 m, in wheat fields. Local name *bilderchin* (Farsi: Deh Bakri); *por* (Baluchi: Kusheh).

Little Ringed Plover *Charadrius dubius*

Alarmed birds seen near Zahedan on 30 May and 6 June, along the same stream as the Kentish Plover. Local name *kākāi* (Zahedan), all shore birds.

Kentish Plover *Charadrius alexandrinus*

Juvenile female, locally bred, near Zahedan 1,350 m, 13 May, at the same spot as *Ch. dubius*. Weight, 32 g.

Wood Sandpiper *Tringa glareola*

An individual at Kusheh 2,100 m on 17 June.

Whiskered Tern *Sterna hybrida*

An individual seen on 17 June near Zadnuk, ca. 1,500 m, on the plateau west of the Taftan, flying over desert country.

Black-bellied Sandgrouse *Pterocles orientalis*

Flocks up to 24 birds come to the stream at Kusheh 2,200 m. Local name *kōtar* (Baluchi: Kusheh), *bāh-qeqereh* (Zahedan).

Wood Pigeon *Columba palumbus*

A pair seen on 25 May at Deh Bakri 2,300 m. Blanford saw this species in the gardens of Rayen 2,100 m.

Eagle Owl *Bubo bubo*

We saw an Eagle Owl, flying at dusk above the town of Zahedan on 5 June. An owl, perhaps the same individual, was reported to perch nearly every evening on top of a well-lit tall radio antenna. They were evidently attracted to the town by rats.

Short-eared Owl *Asio flammeus*

A carcass from the preceding winter found near Zahedan in June.

Scops Owl *Otus spec.*

Two Scops Owls were heard at Deh Bakri 2,300 m. on 27 May, one in an orchard, the other in the Pistachio zone. Their calls were identical with those of *Otus scops*. Local name *sehāk* (Baluchi: Kusheh) also *kūl* and *joqd* (collective); *durdugu* (Farsi: Deh Bakri); *chuqd* (Zahedan), collective.

Roller *Coracias garrulus*

Seen at Ladiz 1,800 m between Mirjaveh and the Taftan, Kusheh 2,100 m and Zahedan 1,350 m. Local name *gahāma* (Baluchi: Taftan); *kalāq-sabz* (Farsi: Deh Bakri).

Swallow *Hirundo rustica*

A bird of the plateau towns (Bam, Zahedan) occasionally foraging to the foothills (Kusheh 2,200 m in June) and once on the Taftan east slope 2,600 m on 3 June.

Desert Lark *Ammomanes deserti iranica*

Noted sparsely at Jupar 2,400 m, Zahrud 2,400 m (building nest), Deh Bakri 2,600 m, Zahedan 1,350 m (family), Taftan east foothills 2,300—2,400 m, Kusheh

2,300—3,000 m. Has a preference for bare ground. Weight, 1 ♂ 23 g, 1 ♂ juv. 22 g.

Bar-tailed Desert Lark *Ammomanes cincturus zarudnyi*

One male collected near Zahedan 1,350 m on 7 June. Weight, 18 g.

Bifasciated Lark *Alaemon alaudipes*

Seen on flat ground and tamarisk plains between Zahedan 1,350 m, and Mirjaveh, and between Zahedan and Kusheh.

Small Sky Lark *Alauda gulgula inconspicua*

Zahedan 1,350 m in wheat and luzerne fields. Weight, 1 ♂ 27 g. As pointed out by Erard and Etchécopar (1970: 74) it is very doubtful that the ranges of *A. arvensis* and *gulgula* overlap in Iran. It is our opinion that *gulgula* should be treated as a subspecies of *arvensis*. The alleged zone of sympatry in Turkestan requires a new evaluation of the seasonal records. Moreover, as shown by Vaurie (1951: 507, 508) the eastern Asiatic populations, especially from Japan, are intermediate and not readily assigned to either group. The comparative description of the song of *gulgula* to *arvensis* by the former authors tallies exactly with our own impression. However, a certain range of song variations may be allowed in such wide-ranging species (cf. *Sylvia curruca*).

Yellow Wagtail *Motacilla flava feldegg*

A male collected in cultivation near Zahedan on 6 June in irrigated cultivation. Weight, 18 g.

Oriole *Oriolus oriolus*

Song heard at Kasimabad 2,200 m (Jupar) on 12 May, in cultivation with tall old sycamores and poplars.

Brown-necked Raven *Corvus ruficollis*

Seen around Zahedan 1,350 m in June and a flock near Kusheh, 2,100 m on 13 June. Quite distinct in voice and habits from *C. corax* of which it has been sometimes considered a subspecies. Prefers semi-desert in flat country and does not enter the mountains. Local name *kalāq* (Baluchi: Kusheh).

Pleske's Ground Jay *Podoces pleskei*

Observed on several occasions in flat semi-desert between Zahedan and Kusheh. The bird's habits in the field reminds of certain starlings more than the jays. In plumage pattern, *Podoces* resembles certain starlings (*Sturnus sericeus* for instance). The peculiar crown feathers of *P. hendersoni* are similar to those of *Streptocitta*. The forwardly directed feathers at the base of the bill are also found in *Mino*, *Ampeliceps* and some members of the genus *Acridotheres*. Some starlings build a dome-shaped nest like *Podoces*, while *Pseudopodoces* nests in holes in banks like some Asiatic members of the Sturnidae. We recognize, however, the near relationships of *Podoces* and *Nucifraga* as shown by their external characters. This intermediate position of *Podoces* only serves to emphasize the close affinities between the Sturnidae and the Corvidae.

Clamorous Reed-Warbler *Acrocephalus stentoreus brunnescens*

One female collected near Zahedan on 6 June. Weight, 26 g.

Hooded Chat *Oenanthe monacha*

One female near Zahedan 1,350 m, 7 June, in flat, sandy semi-desert near cultivation. This species' preference for sandy soils was noted by Blanford. We also observed the species in flat semi-desert between Zahedan and Mirjaveh, and between Zahedan and Kusheh. Not seen in the hills. This species is remarkable by its long tail and long tarsi. Weight, 1 ♀, ovary regressive, 18 g. Color of bare parts: Iris brown; bill dark brown; legs and feet blackish. Stomach contents: a few seeds.

Isabelline Wheatear *Oenanthe isabellina*

Seen only near Kusheh 2,250 m, on sandy soil in and near cultivation. Weight, 1 (o) juv. 26 g. Local name *dik* (Baluchi: Kusheh).

Rufous Chat *Erythropygia galactotes familiaris*

Zahedan 1,350 m, singing. Weight, 1 ♂ 24 g.

Redstart *Phoenicurus phoenicurus*

Females seen on the Hazar at 2,700 and 3,100 m, 14—20 May, in willows and cultivation. Apparently on passage as we did not see the species anywhere else.

Common Babbler *Turdoides caudatus huttoni*

Zahedan 1,350 m, 17 June, in reeds; Kusheh 2,200 m in dense orchards and 2,300 m in a small patch of high grass. Song, a series of descending whistled notes, quite arresting. Weight, 1 ♀ 46 g. Local name *chikko*, *pīkeleh* (Baluchi: Kusheh).

Tree Sparrow *Passer montanus*

Seen only in the towns of Zahedan 1,350 m, and Mirjaveh ca. 1,300 m where it entirely replaces the House Sparrow.

Red Munia *Estrilda*¹⁾ *amandava amandava*

A flock of 8 birds north of Zahedan 1,350 m, on 6 June, in reeds and tamarisks. Weight, 1 ♂ juv. 9 g. First record for Iran; the previously known western limits of this species was the Sind valley and Quetta in Pakistan.²⁾

Additional comments

We believe it important to signal the absence of a few species that are often shown or inferred to range through Iran. No vultures were seen in the mountains (although the Baluchi people of the Taftan have a name for vulture *lash-khur*, and say it does occur. Winter only?). Writing about Bearded Vultures *Gypaetus barbatus*, Blanford related in 1876: „It is almost impossible to cross any mountain range in Persia without seeing a pair of

¹⁾ = *Amandava*. W.

²⁾ Escaped birds have been observed before near Tehran by Dr. Derek A. Scott (*in litt.*, 1977). We wish to thank him for this and other relevant comments on the manuscript.

these splendid birds". Yet we did not see a single Bearded Vulture during our stay in these highly suitable ranges, especially the Shah Kuh. Carcasses of dead animals were left untouched. Finsch's Wheatear *Oenanthe finschi* was not observed in the southern part of the country. The Desert Finch *Rhodospiza obsoleta* was not seen; it appears to be a bird of lower elevations. The Mongolian Trumpeter Finch *Carpodacus mongolicus* does not breed in the southern mountains. We did not find the Ortolan Bunting. Specimens of this species were collected by Blanford at Hanaka 2,400 m, southeast of Kerman, on 2 May, still within the migration period. The Ortolan probably does not breed east of the Zagros; even there it has not positively been recorded as a breeding bird.

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Summary

This paper is a report on investigations carried out in May and June 1975 in the central ranges of southern Iran and on the Kuh-e Taftan volcano in the southeast, where the distribution of birds above the altitude of 2,000 m was practically unknown. Voucher specimens were collected. The new data confirm the breeding or extend the known range of a number of species heretofore only assumed to breed there. Notes are given on habitat and altitudinal distribution.

Zusammenfassung

Die vorstehende Arbeit stellt die Ergebnisse von Untersuchungen zusammen, die im Mai und Juni 1975 in den zentralen Bergketten des Süd-Iran und am Vulkan Kuh-e Taftan im Südosten des Landes, wo die Verbreitung der Vögel oberhalb 2000 m bislang praktisch unerforscht war, durchgeführt wurden. Es wurden Belegstücke gesammelt, und für eine Anzahl von Arten wurde das angenommene Brutvorkommen in diesen Gebieten bestätigt, für andere das Brüten dort bestätigt, wo es bisher nur vermutet wurde. Außerdem werden in der vorliegenden Arbeit Angaben über Lebensraum und Höhenverbreitung der Vögel gemacht.

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